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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PARSONS, THOMAS H

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,465	Applicant(s) OHASHI ET AL.	
	Examiner THOMAS H. PARSONS	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

This is in response to the Amendment filed 3 December 2008.

(Previous) DETAILED ACTION

Specification

1. The objection to the disclosure because of minor informalities has been **withdrawn** in view of Applicants' Amendment.

Claim Rejections - 35 USC § 112

2. The rejection of claims 6-8 and 15 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been **withdrawn**.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 5, 9-11, 13, and 18-19 **stand** rejected under 35 U.S.C. 102(b) as being anticipated by Higuchi et al. (US 5,824,430).

Claim 1: Higuchi et al. in Figures 1(b) and 1(c) disclose a microporous polyolefin film that comprises polyethylene and polypropylene as essential components and is composed of a laminate film of two or more layers, wherein the percentage of polypropylene blended in at least one surface layer of the film is more than 50% by weight and 95% or less and the content of polyethylene in the entire film is 50% or more and 95% or less (abstract, col. 5: 56-col. 6: 9 and col. 5: 1-6). See also entire document.

Claim 2: Higuchi et al. in Figure 1(b) disclose that at least one layer of the laminate film is a polyethylene single layer film (col. 4: 58-67). In particular, Higuchi et al. disclose in Figure 1(b) that layer to can be polyethylene alone, or a blend of polypropylene and polyethylene.

Claim 3: Higuchi et al. in Figure 1 disclose that the laminate film is made up of three layers (col. 3: 45-53).

Claim 5: Higuchi et al. disclose that the proportion of the thickness of the layer in which the percentage of propylene blended is more than 50% by weight and 95% or less is 1.5% or more and 35% or less of the entire film thickness (col. 3: 64-col. 4: 3 and col. 6: 11-23).

Claim 9: Higuchi et al. disclose a lithium-ion battery separator (col. 13: 3-15), comprising a microporous polyolefin film that comprises polyethylene and polypropylene as essential components and is composed of a laminate film of two or more layers (Figures 1(b) and 1(c), wherein the percentage of polypropylene blended in at least one surface layer of the film is more than 50% by weight and 95% or less and the content of polyethylene in the entire film is 50% or more and 95% or less (abstract, col. 5: 56-col. 6: 9 and col. 5: 1-6). See also entire document.

Claim 10: The rejection of claim 10 is as set forth above in claim 2.

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Claim 11: The rejection of claim 11 is as set forth above in claim 3.

Claim 13: The rejection of claim 13 is as set forth above in claim 5.

Claims 18 and 19: Higuchi et al. in Figure 1(b) disclose that at least one layer of the laminate film is a polyethylene single layer film and the laminate film is made up of three layers. In particular, Higuchi et al. disclose in Figure 1(b) that layer to can be polyethylene alone, or a blend of polypropylene and polyethylene.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4, 6-8, 12, and 14-16 **stand** rejected under 35 U.S.C. 103(a) as being unpatentable over Higuchi et al. (US 5,824,430) as applied to claim 1 above.

Higuchi et al. are as applied, argued, and disclosed above, and incorporated herein.

Claim 4: Higuchi et al. do not disclose that each of the layers that make up the laminate film has a three-dimensional network.

However, because the microporous polyolefin film of Higuchi et al. has a composition similar to, and is produced in similar fashion to that instantly disclosed (i.e. extruded, heated, stretched), it each of the layers that make up the laminate film would obviously have a three-dimensional network.

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Claim 6: Higuchi et al. do not disclose that the average pore diameter is 0.02 μm or more and 1 μm or less.

However, because the microporous polyolefin film of Higuchi et al. has a composition similar to, and is produced in similar fashion to that instantly disclosed (i.e. extruded, heated, stretched), it obviously would provided the claimed average pore diameter.

Claim 7: Higuchi et al. do not disclose that the shutdown temperature at the time of high speed heat-up is lower than 150 $^{\circ}\text{C}$ and the short-circuit temperature at the time of high speed heat-up is 190 $^{\circ}\text{C}$ or higher.

However, because the microporous polyolefin film of Higuchi et al. has a composition similar to, and is produced in similar fashion to that instantly disclosed (i.e. extruded, heated, stretched), it obviously would provided the claimed shutdown temperature and short-circuit temperature.

Claim 8: Higuchi et al. do not disclose that the high temperature puncture strength is 0.005 $\text{N}/\mu\text{m}$ or more.

However, because the microporous polyolefin film of Higuchi et al. has a composition similar to, and is produced in similar fashion to that instantly disclosed (i.e. extruded, heated, stretched), it obviously would provided the claimed high temperature puncture strength.

Claim 12: The rejection of claim 12 is as set forth above in claim 5.

Claim 14: The rejection of claim 14 is as set forth above in claim 6.

Claim 15: The rejection of claim 15 is as set forth above in claim 7.

Claim 16: The rejection of claim 16 is as set forth above in claim 8.

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Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 17 **stands** rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Higuchi et al. (US 5,824,430).

Claim 17: Higuchi et al. in Figure 1 disclose a lithium-ion battery separator (col. 13: 3-15) comprising a microporous polyolefin film but does not disclose that the film has a degree of blackening of 5% or less.

However, because the microporous polyolefin film of Higuchi et al. has the **same** composition as, and is produced in the **same** manner as that instantly disclosed (i.e. extruded, heated, stretched), it inherently would provided the claimed degree of blackening.

Or, in the alternative, because the microporous polyolefin film of Higuchi et al. has a composition **similar** to, and is produced in **similar** fashion to that instantly disclosed (i.e. extruded, heated, stretched), it obviously would provided the claimed degree of blackening.

Response to Arguments

10. Applicant's arguments, see page 8, line 7 through page 10, line 5 filed 3 December 2008, with respect to claims 1-19 have been fully considered and are persuasive. Thus,

The rejections of claims 1, 3, 5-6, 9, 11, and 13-14 under 35 U.S.C. 102(b) as being anticipated by Nishiyama et al. (US 5,731,074) has been **withdrawn**.

The rejection of claims 4, 7-8, 12, and 15-16 under 35 U.S.C. 103(a) as being unpatentable over Nishiyama et al. as applied to claim 1 above has been **withdrawn**.

The rejection of claim 17 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nishiyama et al. (US 5,731,074) has been **withdrawn**.

The rejection of claims 2, 10, 18-19 under 35 U.S.C. 103(a) as being unpatentable over Nishiyama et al. (US 5,731,074) as applied to claims 1 and 9 above, and further in view of Higuchi et al. (US 5,824,430) has been **withdrawn**.

11. Applicants' arguments filed 3 December 2008 with respect to the rejection of claims 1-19 over Higuchi et al. have been fully considered but they are not persuasive (see Applicants' arguments, page 5, line 19 through page 8, line 6).

On page 6, lines 20-23, the Applicants argue, "...it is not understood how the Office considers Higuchi et al. to satisfy the limitation that the film contains both (1) polyethylene in an amount of 50-95% and (2) a surface layer that contains polypropylene in an amount of 50-95% by weight."

In response, Higuchi et al. in Figure 1(b) disclose a laminate structure comprising a material (2) having a melting point of from 100°C to 140°C provided on both sides of a

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polypropylene layer (1) (col. 5: 62-66). Higuchi et al. further disclose that the material having a melting point of from 100°C to 140°C is preferably a resin composition comprising 0% to 60% by weight of a polypropylene and 40% to 100% by weight of a polyethylene, the sum of the polypropylene and the polyethylene being 100% by weight.

Claim 1 requires that the percentage of polypropylene blended in *at least one surface layer* of the film is more than 50% by weight and 95% or less and the content of polyethylene in the entire film is 50% or more and 95% or less. To meet this limitation, one surface layer of the laminate would be required to comprise, at minimum, 51 wt% polypropylene and 49 wt% polyethylene which falls within the claimed range of than 50% by weight and 95% or less. However, the other surface layer of the laminate is not restricted to the limitation and can comprise a resin composition comprising 0% to 60% by weight of a polypropylene and 40% to 100% by weight of a polyethylene, the sum of the polypropylene and the polyethylene being 100% by weight. Assume, e.g., that this surface layer comprises 10 wt% polypropylene and 90 wt% polyethylene. The content of polyethylene in the entire film is 50% or more and 95% or less (i.e. (49 wt% polyethylene from the one surface + 90 wt% polyethylene from the other surface)/200 wt% (total sum of polyethylene and polypropylene in the entire film) equates to approximately 70% polyethylene in the entire film, which meets the limitation of the claim.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS H. PARSONS whose telephone number is (571)272-1290. The examiner can normally be reached on M-F (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795

Thomas H Parsons
Examiner
Art Unit 1795
